

10 CFR 50.73

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555-0001

Gentlemen:

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-390

**WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 – LICENSEE EVENT REPORT (LER)
390/2008-004, REVISION 0 – AUTOMATIC REACTOR TRIP IN RESPONSE TO OPENING OF
EXCITER FIELD BREAKER**

This submittal provides LER 390/2008-004. This LER documents an event where the reactor was automatically tripped by a Nuclear Assistant Unit Operator (NAUO) making a human performance error while answering a question about breaker operation. The report regarding this condition is provided in accordance with 10 CFR 50.73(a)(2)(iv)(A).

There are no regulatory commitments associated with this submittal. If you have any questions concerning this matter, please contact Chris Riedl at (423) 365-1742.

Sincerely,

Mike Skaggs
Site Vice President
Watts Bar Nuclear Plant

Enclosure
cc: See Page 2

Enclosure

cc (Enclosure):

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 50 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME

Watts Bar Nuclear Plant

2. DOCKET NUMBER

05000 390

3. PAGE

1 OF 4

4. TITLE

Automatic Reactor Trip in Response to Opening of Exciter Field Breaker

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	20	2008	2008	- 004 -	0	11	19	2008	N/A	N/A
									N/A	N/A

9. OPERATING MODE

1

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: (Check all that apply)

☐ 20.2201(b)☐ 20.2203(a)(3)(i)☐ 50.73(a)(2)(i)(C)☐ 50.73(a)(2)(vii)☐ 20.2201(d)☐ 20.2203(a)(3)(ii)☐ 50.73(a)(2)(ii)(A)☐ 50.73(a)(2)(viii)(A)☐ 20.2203(a)(1)☐ 20.2203(a)(4)☐ 50.73(a)(2)(ii)(B)☐ 50.73(a)(2)(viii)(B)☐ 20.2203(a)(2)(i)☐ 50.36(c)(1)(i)(A)☐ 50.73(a)(2)(iii)☐ 50.73(a)(2)(ix)(A)☐ 20.2203(a)(2)(ii)☐ 50.36(c)(1)(ii)(A)☒ 50.73(a)(2)(iv)(A)☐ 50.73(a)(2)(x)☐ 20.2203(a)(2)(iii)☐ 50.36(c)(2)☐ 50.73(a)(2)(v)(A)☐ 73.71(a)(4)☐ 20.2203(a)(2)(iv)☐ 50.46(a)(3)(ii)☐ 50.73(a)(2)(v)(B)☐ 73.71(a)(5)☐ 20.2203(a)(2)(v)☐ 50.73(a)(2)(i)(A)☐ 50.73(a)(2)(v)(C)☐ OTHER☐ 20.2203(a)(2)(vi)☐ 50.73(a)(2)(i)(B)☐ 50.73(a)(2)(v)(D)Specify in Abstract below
or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME

Michelle Pope, Licensing Engineer

TELEPHONE NUMBER (Include Area Code)

(423) 365-8138

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE)☒ NO

15. EXPECTED SUBMISSION DATE

MONTH

DAY

YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

During normal plant operation on September 20, 2008, unexpected annunciator alarms were received in the control room indicating an automatic reactor trip based on a loss of electrical load. Subsequently, the control room was informed by a Nuclear Assistant Unit Operator that he had tripped open the Exciter Field Breaker, leading to the turbine trip and successive reactor trip.

The cause of this event has been determined to be human performance error in that the NAUO failed to recognize the need to utilize error reduction techniques when opening the exciter field breaker cabinet door. Corrective action has been taken to add the applicable information to operator requalification programs.

As a result of the plant trip, the actuation of the Reactor Protection and the Auxiliary Feedwater Systems were reported in accordance with 10 CFR 50.72(b)(2)(iv)(B) and 10 CFR 50.72(b)(3)(iv)(A), respectively, as ENS notification 44506. This event is also being reported as this Licensee Event Report in accordance with 10 CFR 50.73(a)(2)(iv)(A).

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NARRATIVE

I. PLANT CONDITIONS:

The events discussed in LER 2008-004 occurred on September 20, 2008 when the unit was at 100% power.

II. DESCRIPTION OF EVENT:

A. Event:

On September 20, 2008, Watts Bar Nuclear (WBN) Unit 1 was operating at 100% power. During rounds, the NAUO stopped and opened the exciter field breaker panel to show a trainee the breaker. While explaining that the breaker had to be manually aligned and pushed into the cubicle with a second party to push the de-latching bar, the NAUO pushed the de-latching bar. This resulted in the breaker opening, a turbine trip, and a reactor trip. All systems responded as designed to their intended safety functions in response to the trip.

This event is addressed in TVA's Corrective Action Program as Problem Evaluation Reports (PERs) 152951, 152954, and 152955.

B. Inoperable Structures, Components, or Systems that Contributed to the Event

There were no additional structures, components or systems inoperable at the start of the event that contributed to the event.

C. Dates and Approximate Times of Major Occurrences

Date	Time (EDT)	Event
September 20, 2008	0900	NAUO opened cabinet on Exciter Field Breaker and began showing trainee how to operate.
	0903	NAUO depressed latching mechanism, causing breaker to open. This caused a turbine trip and subsequent automatic reactor trip.

D. Other Systems or Secondary Functions Affected

The plant trip was normal except that the operators took manual control of the auxiliary feedwater (AFW) level control valves (EIS Code BA LCV) to control steam generator (EIS Code SG) level and reactor coolant system (EIS Code AB) cooldown. The valves controlled level properly in the manual state. The need for the operations staff to manually control AFW was previously documented in PER 150508.

E. Method of Discovery

Control room personnel received annunciator alarms consistent with a reactor trip due to an open Exciter Field Breaker. The control room was also notified of the NAUO's actions by the NAUO.

F. Operator Actions

The Operations staff (licensed personnel) responded to the event in accordance with all operations management and operations training management expectations. No human performance issues were identified during the response to the automatic trip.

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NARRATIVE**II. DESCRIPTION OF EVENT (continued):****G. Safety System Responses**

All systems responded as designed and as previously stated, the operations staff took manual control of AFW to regulate steam generator level.

III. CAUSE OF EVENT

The NAUO had lapses in judgment and violated sound operator fundamentals and procedures. The NAUO failed to meet the expectation to notify Shift Manager or use error reduction tools when opening the exciter field breaker panel for inspection. No time or schedule pressures existed that contributed to this event.

IV. ANALYSIS OF THE EVENT

Plant safety systems performed their intended safety functions in response to the automatic reactor trip. All control rods fully inserted into the core, and plant decay heat removal functioned properly. During the trip, the C feedwater heater string (EIS Code SJ HX) isolated. This was expected, per a previous Engineering Design Change (EDC) 52270. See Section V, "Assessment of Safety Consequences," below for further discussion.

V. ASSESSMENT OF SAFETY CONSEQUENCES

The automatic reactor trip on 09/20/2008 can be compared to the Final Safety Analysis Report (FSAR) "LOSS OF ELECTRICAL LOAD AND/OR TURBINE TRIP", Updated FSAR (UFSAR) section 15.2.7. The reactor (EIS Code RCT) was automatically tripped at approximately 09:03 due to a loss of electrical load on the main generator (EIS Code TB) when the exciter breaker tripped open. Subsequently, a hi-hi level in heater C2 resulted in the C-heater string isolation. Therefore, the FSAR "LOSS OF NORMAL FEEDWATER" UFSAR section 15.2.8 is also applicable to this event. Main feedwater flow was isolated due to the low Tavg with Rx trip signal. The hi-hi C-2 heater isolation was caused by the bypass to condenser level control valves (LCVs) being closed during high turbine load operation in accordance with plant design to minimize water hammer.

The plant was stabilized using Auxiliary Feedwater and the Main Steam dump valves (EIS Code SB). The secondary side steam generator atmospheric relief valves (EIS Code RV) and safety valves did not operate during the transient. The Reactor Coolant System responded to the initial transient as expected with no pressurizer PORV relief, no safety injection initiation, and no steam generator PORV relief.

Therefore, the 09/20/2008 trip is bounded by the FSAR safety analysis assumptions.

VI. CORRECTIVE ACTIONS- The corrective actions for this condition are being managed within TVA's Corrective Action Program (PERs 152951, 152954, and 152955) and therefore are not considered to be regulatory commitments. An overview of the corrective action plan is provided below:**A. Immediate Corrective Actions**

1. The NAUO was restricted from duty.
2. A crew stand-down was held to discuss expectations for use of Human Performance Tools.
3. A training brief was issued by the Operations Superintendent.

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NARRATIVE

VI. CORRECTIVE ACTIONS (continued)

B. Corrective Actions to Prevent Recurrence

1. A stand-down brief was held during the Initial Turnover Meeting upon each crew's first shift back to direct the rules for inspecting normal plant equipment for training purpose and ensure no hands-on manipulations occur without the proper procedures in hand, notifications of training being in progress, and Main Control Room concurrence.
2. A training brief on TI-12.10, "Control of Sensitive Equipment," was completed on each crew's first shift back.
3. The TI-12.10 procedure will be included in the Cycle 8 Non-Licensed Operator training.
4. Reactor trip warning labels will be revised to reference the TI.
5. The area around the sensitive equipment listed in TI-12.10 will be marked with a noticeable caution.

VII. ADDITIONAL INFORMATION

A. Failed Components

None.

B. Previous LERs on Similar Events

No similar LERs have occurred at Watts Bar.

C. Additional Information:

None.

D. Safety System Functional Failure

This event did not involve a safety system functional failure as defined in NEI 99-02, Revision 5.

E. Loss of Normal Heat Removal Consideration

There was no loss of normal heat removal due to this condition.

VIII. COMMITMENTS

None.